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Date of Application:

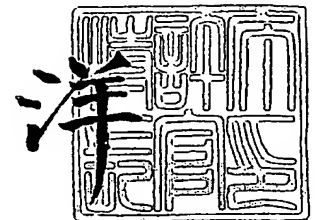
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出      願      人                      キヤノン株式会社  
Applicant(s):

2 0 0 5 年   2 月   3 日

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Japan Patent Office

小 川



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    【物件名】 要約書 1

**【書類名】 特許請求の範囲****【請求項 1】**

検体中に含まれる H L A - B 型のアリルの同定に利用し得る多数のプロープからなるプロープセットであって、

前記多数のプロープのそれぞれが、明細書中のアリルリスト中の各アリルの配列中の大文字で表記された塩基を含む部分配列を有することを特徴とするプロープセット。

**【請求項 2】**

明細書中の表 1 - 1 ~ 表 1 - 9 に記載されるプロープ群または表 2 - 1 ~ 表 2 - 8 に記載されるプロープ群からなる請求項 1 に記載のプロープセット。

**【請求項 3】**

検体からの試料中に含まれる H L A - B 型のアリルをプロープセットを用いて同定する方法であって、

該プロープセットが請求項 1 または 2 に記載のプロープセットであることを特徴とする H L A - B 型のアリルを同定する方法。

## 【書類名】明細書

【発明の名称】HLA-Bアレルを同定するためのプローブセット及び特定方法

## 【技術分野】

【0001】

本発明は、人のHLA-Bアレルを同定するためのプローブセット及び特定方法に関する。

## 【背景技術】

【0002】

人白血球のHLA-B型の各アレルについては、従来から血清学的レベルのタイピングが行われてきた。この場合、特別なサンプル処理を必要とせず、抗原抗体反応で容易にタイピングが可能である反面、同定できる内容はアミノ酸配列の違いを区別できるレベルを4桁以上の数字での命名法における3、4桁目とした場合、最初の2桁の数字が血清学的レベルのタイピングで同定可能なレベルである（日本組織適合性学会HLA標準化委員会「アレル表記法と結果報告の原則について2000」<http://jshi.umin.ac.jp/standardization/hyoki.html>参照）。

【0003】

その他のゲノム抽出を伴うタイプの市販キットの多くは、各アレルを個別に同定可能な精度のものではなく、複数のアレルをセットとして区別しているのが現状である。また最も詳細な多型解析を可能とするSBT（Sequencing Based Typing）法に基づくキットにしても、たいていのサンプルはヘテロ接合体であるため、ambiguityの問題を一度に解決できず、再検査を必要とすることが多い。こうした問題を伴うアレルは、IHWG学会の<http://www.ihwg.org/protocols/sbt/ambiguities2.pdf>にまとめて紹介されている。

【非特許文献1】（日本組織適合性学会HLA標準化委員会「アレル表記法と結果報告の原則について2000」（<http://jshi.umin.ac.jp/standardization/hyoki.html>のサイト）

【非特許文献2】<http://www.ihwg.org/protocols/sbt/ambiguities2.pdf>

## 【発明の開示】

## 【発明が解決しようとする課題】

【0004】

一方、近年は高度医療の発達に伴い、臓器移植などの際に詳細なタイピングが要求されるほか、糖尿病や癌、その他多因子病においても、薬剤投与との関連が示唆され、医療行為に対するエヴィデンスが求められている。こうした背景から、各アレルを個別に同定可能な試験方法が望まれており、本発明はかかる要望に対してHLA-Bの各アレルを個別に同定するために有用であるプローブセット及びそれを用いたHLA-Bのアレルの同定方法を提供することを目的とする。

## 【課題を解決するための手段】

【0005】

本発明にかかるHLA-Bアレルを同定するためのプローブセットは、検体中に含まれるHLA-B型のアレルの同定に利用し得る多数のプローブからなるプローブセットであって、前記多数のプローブのそれぞれが、明細書中のアレルリスト中の各アレルの配列中の大文字で表記された塩基を含む部分配列を有することを特徴とするプローブセットである。

【0006】

また、本発明にかかるHLA-Bアレルの同定方法は、検体からの試料中に含まれるHLA-B型のアレルをプローブセットを用いて同定する方法であって、該プローブセットが請求項1または2に記載のプローブセットであることを特徴とするHLA-B型のアレルを同定する方法である。

## 【発明の効果】

【0007】

本発明にかかるプローブセット及びそれを用いたHLA-Bアレルの同定によって、臓



器移植、癌、糖尿病、その他多因子病において必要とされる体質判定、テーラーメイド医療に貢献することができる。

【発明を実施するための最良の形態】

【0008】

本発明のプローブセットを構成する各プローブは後述するアレルリストの各アレルにおける大文字表記の塩基を含む部分配列をそれぞれが有するものである。好ましくは、大文字の塩基を含む10～30の塩基からなる部分を選択し得られた部分塩基配列からなるプローブを用いてプローブセットを構成する。具体例としては、後述の表1-1～1-9のプロープリスト1または表2-1～2-8のプロープリスト2に挙げられた各プローブ群からプローブセットを構成することができる。例えば、プロープリスト1における0番のプローブは、B\*070201の最初の大文字(G)が含まれている部分「aggtatttctacacctccG」の19塩基配列からなるものであり、プロープリスト2におけるプローブ0番もまた同じアレルの最初の大文字のGを含む部分「cacctccGtgtcccg」の16塩基配列からなるものである。

【0009】

なお、後述のアレルリストにおける「B\*」で示されている番号は、各アレルに付された固有の番号であり、日本組織適合性学会HLA標準化委員会による「アレル表記法」に従ったものである。

【0010】

本発明にかかるアレルの同定方法におけるプローブによるアレルの検出には、例えば、2つの方法が可能である。一つはハイブリダイゼーション法によって検出する場合と、もう一つはPCR法によってハイブリダイゼーションをすることなしに直接検出する場合である。いずれの場合も、好ましくは十数個から二十数個程度の長さのオリゴヌクレオチドに、大文字で表した塩基を含むようにプローブが設計される。

【0011】

また、本発明において提供されるプローブアレイは、各アレルを個別に同定するための変異塩基の組をプローブとして選択する位置で提示しているともいえる。この変異塩基を検出するための方法にもハイブリダイゼーション法による検出方法と、PCR法によってハイブリダイゼーションをすることなしに直接検出する方法が好適に利用できる。これらの場合にも、好ましくは十数個から二十数個程度の長さのオリゴヌクレオチドに、大文字で表した塩基を含むようにプローブが設計される。

【0012】

ハイブリダイゼーションによって変異を検出する場合は、プローブの中心付近にミスマッチが(即ち大文字で表した変異塩基が)来るようにプローブを設計したほうが、フルマッチとミスマッチの配列間でT<sub>m</sub>に差がつきやすく、ハイブリダイゼーションの反応温度を調節することによって、両者を分離しやすい。

【0013】

一方PCR法によって直接変異を検出する場合は、酵素がアニールした二本鎖を認識して伸長しないよう、むしろ3'末端側にミスマッチを配置することが行われる。またAllel Specific Primerのように、3'末端から2つ目にミスマッチを配置し、3個目に人為的にミスマッチを追加したり(東洋紡(株))、3'末端側にミスマッチを配置するがライゲーションによって、プローブの環状化を行う方法(アマシャムバイオサイエンス(株))、TaqMan-MGB法(ABI社) LNAを使った3'末端ミスマッチ(プロリゴ・ジャパン(株))など、いくつかのバリエーションが可能である。

【実施例】

【0014】

以下実施例により本発明を更に説明する。

【0015】

(実施例1)

アマシャムバイオサイエンスのGFX Genomic Blood DNA Purification Kitを使って、人

の血液1mlからDNAの抽出を行った。以下にプロトコールを示す。

【0016】

血液1ml

- ↓ +RBC Lysis Solution (溶血)
- ↓ +血液サンプル (穏やかに混和)
- ↓ 室温、5分間
- ↓ 12,000~16,000×g、20秒間遠心
- ↓ 上清を20~50  $\mu$ l 残して捨てる
- ↓ 沈殿物を再懸濁
- ↓ +Extraction Solution (激しくボルテックス)
- ↓ 室温、5分間 (DNAの抽出)
- ↓ Collection TubeにGFX Columnをセット
- ↓ 溶出バッファーを70℃に加温
- ↓ +サンプル
- ↓ 5,000×g、1分間遠心 (DNAの結合)
- ↓ +Extraction Solution (洗浄)
- ↓ 5,000×g、1分間遠心
- ↓ +Wash Solution (洗浄)
- ↓ 12,000×g、3分間遠心
- ↓ GFX Columnを遠心チューブにセット
- ↓ +純水で溶出
- ↓ 室温、1分間
- ↓ 5,000~8,000×g、1分間遠心

230  $\mu$ l に濃縮調整………溶液 (1)

【0017】

次にキアゲン社のQuantiTect SYBR Green PCR Kit、ABI社のGeneAmp5700を使って、定量PCRを行った。反応組成およびプロトコールを以下に示す。

1) 反応組成/well (96wellマイクロプレート)

QuantiTect SYBR Green 2×プレミクス: 10  $\mu$ l

溶液 (1): 1  $\mu$ l

プローブリスト1の各プローブ (10 pmol/ $\mu$ l): 1  $\mu$ l

ミックスプライマ (10 pmol/ $\mu$ l) 注): 3  $\mu$ l

超純水: 5  $\mu$ l

(合計: 20  $\mu$ l)

注) 以下の配列を持つ各10 pmol/ $\mu$ l の水溶液各1  $\mu$ l

CTGAGCTCTTCCTCCTACACA

TCCTTCCCGTTCTCCAGGT

AGGTCTCGGTCAGGGCCA

2) PCRプログラム

94℃: 180secの後に (94℃: 10sec+66℃: 10sec+72℃: 20sec) の30 cyclesを行った。5700ソフトウェア画面上のAmp PlotおよびDissociationカーブおよびアレルプローブ対応リスト1 (後述) を参照して、B\*520101であると同定された。

【0018】

(実施例2)

人の血液1mlからのDNA抽出は、実施例1と同様に行った。次にタカラバイオ (株) のEx Taq、ABI社のPCR装置9700を使って、人HLA-BのPCRを行った。反応組成およびプロトコールを以下に示す。

1) 反応組成/tube

Ex Taq 2×プレミクス: 20  $\mu$ l

溶液 (1): 3  $\mu$ l

Cy-3 dUTP (1mM) :  $2\mu\text{l}$

ミックスプライマ (10 pmol/ $\mu\text{l}$ ) 注) :  $2\mu\text{l}$

超純水 :  $13\mu\text{l}$

(合計 :  $40\mu\text{l}$ )

注) 以下の配列を持つ各10 pmol/ $\mu\text{l}$  の水溶液各 $1\mu\text{l}$

CTGAGCTCTTCCTCCTACACA

GCTCCCACTCCATGAGGTATTTTC

## 2) PCRプログラム

94℃ : 180secの後に、(94℃ : 10sec + 66℃ : 10sec + 72℃ : 20sec) の30cyclesを行った。反応終了後、精製用カラム (QIAGEN QIAquick PCR Purification Kit) を用いて未反応のdNTPs等のClean Upを行った。

### 【0019】

一方上述の検体に対して、アレルを同定するためのDNAマイクロアレイを作製した。作製の方法は、特開平11-187900号公報の実施例に従った。固相化のための官能基はSH基とし、ガラス基板上にシランカップリング処理を行い、2価性試薬のEMCS (N-(6-Maleimidocaproyloxy)succinimide) 介してSH基と架橋した。各ドットのプローブは、プローブリスト2の各プローブを用いた。

### 【0020】

次に先ほどの検体と作製したDNAマイクロアレイを用いて、ハイブリダイゼーションを行った。DNAマイクロアレイは予めBSA (牛血清アルブミン) 1wt%加PBSで2時間ブロッキングした。検体はその塩濃度がPBSと等しくなるように、また0.1wt% SDS (ドデシル硫酸ナトリウム)、25% Formamideとなるように調整し、その $50\mu\text{l}$ を、先ほどのブロッキング済みDNAマイクロアレイと60℃で2時間反応させ、未反応物を2×SSC溶液 (NaCl 300mM、Sodium Citrate (trisodium citrate dihydrate,  $\text{C}_6\text{H}_5\text{Na}_3 \cdot 2\text{H}_2\text{O}$ ) 30mM、p.H. 7.0) で3回、続いて0.1×SSC溶液で2回洗浄した後風乾させ、Axon社製、GenePix 4000Bを用いて蛍光測定を行った。アレル-プローブ対応リスト2 (後述) を参照してB\*520101であることが同定された。

### 【0021】

#### アレルリスト

B\*070201 atgctgggtcatggcgccccgaaccgtcctcctgctgctctcggcggccctggccctgaccgagac  
ctgggccggctccactccatgaggtatcttacacctccGtgtcccgccggccgcccggggagccccgcttcatctcag  
tgggctacgtggacgacacccagttcgtgaggttcgacagcgacgcccgcgagtcgagagaggagccgcccggcgccgtgg  
atagagcaggagggggccggagtattgggaccggaacacacagatctacaaggcccaggcacagactgaccgagagagcct  
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cggacggggcgccctcctccgcccGatgaccagTaccctacgacggcaaggattacatcgccctgaacgaggacctgcgc  
tcctggaccgccgacacggcggtcagatcacccagcgcaagtgggagggcgcccgctgaggcgagcagcGgagagc  
ctacctggagggcgAgtgcgtggagtGgctccgcagatacctggagaacgggaaggacaagctgGagcgcgctgaccccc  
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tagaaccttccagaagtgggcagctgtggtggtgccttctggagaagagcagagatacacatgccatgtacagcatgagg  
ggctgccgaagccccctaccctgagatgggagccgtcttcccagtcaccgctccccatcgctgggcattgttgctggccctg  
gctgtcctaNNNgcagttgtggtcatcggagctgtggtcgtgctgtgatgtgtaggaggaagagttcaggtgga

### 【0022】

B\*070202 atgctgggtcatggcgccccgaaccgtcctcctgctgctctcggcggccctggccctgaccgagac  
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ggctgccgaagcccctcacctgagatgggagccgtcttcccagtcaccgtccccatcgctgggcattgttgcctggcctg  
gctgtccta...gcagttgtggtcatcggagctgtggtcgctgctgtgatgttaggaggaagagtt

【0023】

B\*070203 gctcccactccatgaggtatttctacacctccgtgtcccggcccggccgcggggagccccgcttc  
atctcagtgggctacgtggacgacacGcagttcgtgaggttcgacagcgacgccgcgagtcgagagaggagccgcgggc  
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g

【0024】

B\*0703 atgctggtcatggcgccccgaaccgtcctcctgctgctctcggcgccctggccctgaccgagac  
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【0025】

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【0026】

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【0028】

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【0030】

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【0031】

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【0035】

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【0036】

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【0037】

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【0038】

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【0039】

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【0040】

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【0041】

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【0044】

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【0045】

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【0048】

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【0049】

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【0050】

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【0051】

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【0052】

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【0053】

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【0054】

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【0055】

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【0056】

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【0057】

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【0059】

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【0060】

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【0062】

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## 【0063】

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## 【0064】

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## 【0065】

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## 【0066】

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## 【0067】

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## 【0068】

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【0 0 7 1】

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【0 0 7 2】

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【0073】

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【0074】

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【0075】

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【0076】

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【0077】

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【0078】

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【0079】

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【0080】

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【0081】

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【0082】

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【0083】

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【0084】

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【0085】

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【0086】

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【0087】

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【0088】

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【0089】

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【0105】

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【0106】

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【0107】

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【0108】

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【0109】

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【0110】

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【0111】

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【0112】

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【0113】

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【0114】

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【0115】

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【0116】

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【0117】

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【0118】

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【0119】

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【0120】

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【0121】

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【0122】

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## 【0123】

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## 【0124】

B\*1538 gctccactccatgaggtattttctacaccgcatgtcccggcccggcggggagccccgcttc  
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## 【0125】

B\*1539 gctccactccatgaggtattttctacaccgcatgtcccggcccggcggggagccccgcttc  
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## 【0126】

B\*1540 gctccactccatgaggtattttctacaccgcatgtcccggcccggcggggagccccgcttc  
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## 【0127】

B\*1542 gctccactccatgaggtattttctacaccgcatgtcccggcccggcggggagccccgcttc  
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## 【0128】

B\*1543 gctccactccatgaggtattttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0129】

B\*1544 gctccactccatgaggtattttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0130】

B\*1545 gctccactccatgaggtattttctacaccgccAtgtcccggcccggccgcggggagccccgcttc  
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【0131】

B\*1546 atcggggtcacggcgccccgaaccgtcctcctgctgctctcgggAgccctggccctgaccgagac  
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【0132】

B\*1547 gctccactccatgaggtattttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0133】

B\*1548 gctccactccatgaggtattttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0134】

B\*1549 gctcccactccatgaggtatttctacaccgcatgtcccggccccggcgggggagccccgcttc  
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【0135】

B\*1550 gctcccactccatgaggtatttctacaccgcatgtcccggccccggcgggggagccccgcttc  
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【0136】

B\*1551 gctcccactccatgaggtatttctacaccgcatgtcccggccccggcgggggagccccgcttc  
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【0137】

B\*1552 atgcggtcacggcgccccgaaccgtcctcctgctgctctcgggAgccctggccctgaccgagac  
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【0138】

B\*1553 atgcggtcacggcgccccgaaccgtcctcctgctgctctcgggAgccctggccctgaccgagac  
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【0139】

B\*1554 atgcggtcacggcgccccgaaccgtcctcctgctgctctcgggAgccctggccctgaccgagac

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【0140】

B\*1555 atgcgggtcacggcgccccgaaccgtcctcctgctgctctcgggAgccctggccctgaccgagac  
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【0141】

B\*1556 gctcccactccatgaggtattttctacaccgccatgtcccggcccggccgccccgagccccgctt  
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【0142】

B\*1557 ggggtcacggcgccccgaaccgtcctcctgctgctctcgggagccctggccctgaccgagacctgg  
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【0143】

B\*1558 atgcgggtcacggcgccccgaaccgtcctcctgctgctctcgggAgccctggccctgaccgagac  
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【0144】

B\*1560 gctcccactccatgaggtattttctacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0145】

B\*1561 gctcccactccatgaggtattttctacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0146】

B\*1562 gctcccactccatgaggtattttctacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0147】

B\*1563 gctcccactccatgaggtattttctacaccgccAtgtcccggcccggccgcggggagccccgcttc  
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【0148】

B\*1564 gctcccactccatgaggtattttctacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0149】

B\*1565 gctcccactccatgaggtattttctacaccgccAtgtcccggcccggccgcggggagccccgcttc



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【0150】

B\*1566 atcggggtcacggcgccccgaaccgtcctcctgtgctctcgggAgccctggccctgaccgagac  
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【0151】

B\*1567 gctcccacttcatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0152】

B\*1568 gctcccactccatgaggtatttctacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0153】

B\*1569 gctcccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0154】

B\*1570 gctccactccatgaggtattttctacaccgccAtgtcccggcccggccgcggggagccccgcttc  
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【0155】

B\*1571 gctccactccatgaggtatttcCacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0156】

B\*1572 gctccactccatgaggtattttctacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0157】

B\*1573 gctccactccatgaggtattttctacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0158】

B\*1574 gctccactccatgaggtattttctacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0159】

B\*1575 gctccactccatgaggtatttctacaccgcatgtcccggcccgccgaggagccccgcttc  
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【0160】

B\*180101 atgcgggtcacggcgccccgaaccctcctcctgctgctctggggggcagtgccctgaccgagac  
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【0161】

B\*180102 gctccactccatgaggtatttccacacctccgtgtcccggcccgccgaggagccccgcttc  
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【0162】

B\*1802 atgcgggtcacggcgccccgaaccctcctcctgctgctctggggggcagtgccctgaccgagac  
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【0163】

B\*1803 atgcgggtcacggcgccccgaaccctcctcctgctgctctggggggcagtgccctgaccgagac

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【0164】

B\*1804 gctccactccatgaggtatttctacaccgcatgtcccggcccggccgaggggagccccgcttcc  
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【0165】

B\*1805 gctccactccatgaggtatttccacacctccgtgtcccggcccggccgaggggagccccgcttcc  
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【0166】

B\*1806 atcggggtcacggcgccccgaacctcctcctgctgctctggggggcagtgggcctgaccgagac  
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【0167】

B\*1807 gctccactccatgaggtatttccacacctccgtgtcccggcccggccgaggggagccccgcttcc  
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【0168】

B\*1808 gctccactccatgaggtatttccacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0169】

B\*1809 gctccactccatgaggtatttccacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0170】

B\*1810 gctccactccatgaggtatttccacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0171】

B\*1811 gctccactccatgaggtatttccacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0172】

B\*1812 gctccactccatgaggtatttccacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0173】

B\*1813 gctccactccatgaggtatttccacacctccgtgtcccggcccggccgcggggagccccgcttc

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## 【0174】

B\*1814 gctccactccatgaggtatttcCacacctccgtgtccggccccggccgcggggagccccgcttc  
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## 【0175】

B\*1815 gctccactccatgaggtatttcCacacctccgtgtccggccccggccgcggggagccccgcttc  
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## 【0176】

B\*1818 gctccactccatgaggtatttcCacacctccgtgtccggccccggccgcggggagccccgcttc  
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## 【0177】

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## 【0178】

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【0179】

B\*2703 atgcgggtcacggcgccccgaaccctcctcctgctgctctggggggcagtgggcctgaccgagac  
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【0180】

B\*2704 atgcgggtcacggcgccccgaaccctcctcctgctgctctggggggcagtgggcctgaccgagac  
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【0181】

B\*270502 atgcgggtcacggcgccccgaaccctcctcctgctgctctggggggcagtgggcctgaccgagac  
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【0182】

B\*270503 gctacgtggacgacacgctgttctgtgaggttcgacagcgacgccgcgagtcgagagaggagccg  
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【0183】

B\*270504 atgcggtcacggcgccccgaaccctcctcctgctgctctggggggcagtggccctgaccgagac  
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【0184】

B\*270505 atgcggtcacggcgccccgaaccctcctcctgctgctctggggggcagtggccctgaccgagac  
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【0185】

B\*270506 gctcccactccatgaggtatttccacacctccgtgtcccggccTggccgcggggagccccgcttc  
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【0186】

B\*2706 atgcggtcacggcgccccgaaccctcctcctgctgctctggggggcagtggccctgaccgagac  
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【0187】

B\*2707 ggctcccactccatgaggtatttccacacctccgtgtcccggccccggccgcggggagccccgctt  
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gga

【0188】

B\*2708 atgcgggtcacggcgccccgaacctcctcctgctgctctggggggcagtgggcctgaccgagac  
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【0189】

B\*2709 atgcgggtcacggcgccccgaacctcctcctgctgctctggggggcagtgggcctgaccgagac  
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【0190】

B\*2710 gctcccactccatgaggtatttccacacctccgtgtcccggccccggccgcggggagccccgctt  
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【0191】

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【0192】

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【0193】

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【0194】

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【0195】

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【0196】

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【0197】

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【0198】

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【0199】

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【0200】

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## 【0201】

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## 【0202】

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## 【0203】

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## 【0204】

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## 【0205】

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【0206】

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【0207】

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【0208】

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【0209】

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【0210】

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【0211】

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【0212】

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## 【 0 2 1 4 】

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## 【 0 2 1 5 】

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## 【 0 2 1 6 】

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## 【 0 2 1 7 】

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【0218】

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【0219】

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【0220】

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【0221】

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【0222】

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【0223】

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【0224】

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【0225】

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【0226】

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## 【0227】

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## 【0228】

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## 【0229】

B\*3523 gctccactccatgaggtattttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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## 【0230】

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## 【0231】

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## 【0232】

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【0233】

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【0234】

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【0235】

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【0236】

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【0237】

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【0238】

B\*3532 gctcccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0239】

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【0240】

B\*3534 gctcccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0241】

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【0242】

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【0243】

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【0244】

B\*3538 gctccactccatgaggtattttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0245】

B\*3539 gctccactccatgaggtattttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0246】

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【0247】

B\*3542 atcgggtcacggcgccccgaacctcctcctgctgcttggggggcagtggccctgaccgagac  
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【0248】

B\*3543 atgcgggtcacggcgccccgaaccctcctcctgctgctctggggggcagtgggcctgaccgagac  
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【0249】

B\*3544 gctcccactccatgaggtatcttacaccgcatgtcccggcccggccgaggagccccgcttc  
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【0250】

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【0251】

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【0252】

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【0253】

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【0254】

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【0255】

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【0256】



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【0257】

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【0258】

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【0259】

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【0260】

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【0261】

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【0262】

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【0263】

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【0264】

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【0265】

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【0266】

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【0267】

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【0268】

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【0269】

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【0270】

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【0271】

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【0272】

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【0273】

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【 0 2 7 6 】

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【 0 2 7 7 】

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【0278】

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【0279】

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【0280】

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【0281】

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【0282】



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【0283】

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【0284】

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【0285】

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【0286】

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【0287】

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【0288】

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【0289】

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【0290】

B\*3923 gctcccactccatgaggtatttctacacctccgtgtcccggcccggcgcggggagccccgcttc  
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【0291】

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【0292】

B\*3926 gctcccactccatgaggtatttctacacctccgtgtcccggcccggcgcggggagccccgcttc  
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【0293】

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【0294】

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【0295】

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【0296】

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【0297】

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【0298】

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【0299】

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【0300】

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【0301】

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【0302】

B\*4007 atgcgggtcacggcacccccgaaccgtcctcctgctgctctcgggggccctggccctgaccgagac  
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【0303】

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## 【0304】

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## 【0305】

B\*4010 gctccactccatgaggtatttctacaccgccatgtcccgccccggccgcggggagccccgcttc  
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## 【0306】

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## 【0307】

B\*4012 atgcgggtcacggcgccccgaacctcctcctgctgctctcgggAgccctggccctgaccgagac  
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## 【0308】

B\*4013 atgcgggtcacggcgccccgaacctcctcctgctgctctggggggcagtgccctgaccgagac  
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## 【0309】

B\*401401 gctccactccatgaggtatttcCacaccgccatgtcccgccccggccgcggggagccccgcttc  
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【0310】

B\*401402 gctcccaactccatgaggtatttcCacaccgccaatgtcccggcccggccgcggggagccccgcttc  
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【0311】

B\*4015 gctcccaactccatgaggtatttcacacccgccaatgtcccggcccggccgcggggagccccgcttc  
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【0312】

B\*4016 atgcggggtcacggcaccccgaaacgctcctcgtgctctcggcgccctggccctgaccgagac  
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【0313】

B\*4018 gctcccaactccatgaggtatttcCacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0314】

B\*4019 gctcccaactccatgaggtatttcacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0315】



B\*4020 atgcgggtcacggcgccccgaaccctcctcctgctgctctggggggcagtgggcctgaccgagac  
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【0316】

B\*4021 gctcccactccatgaggtatttctacaccgcatgtcccggcccgccgaggagccccgcttc  
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【0317】

B\*4023 atgcgggtcacggcacccccgaaccgtcctcctgctgctctcggcgccctggccctgaccgagac  
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【0318】

B\*4024 gctcccactccatgaggtatttCacacctccgtgtcccggcccgccgaggagccccgcttc  
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【0319】

B\*4025 gctcccactccatgaggtatttCacaccgcatgtcccggcccgccgaggagccccgcttc  
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【0320】

B\*4026 gctcccactccatgaggtatttccacacctccgtgtcccggcccgccgaggagccccgcttc  
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【0321】

B\*4027 gctcccactccatgaggtatttccacacctccgtgtcccggcccggcgcggggagccccgcttc  
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【0322】

B\*4028 gctcccactccatgaggtatttccacacctccgtgtcccggcccggcgcggggagccccgcttc  
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【0323】

B\*4029 gctcccactccatgaggtatttccacacctccgtgtcccggcccggcgcggggagccccgcttc  
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【0324】

B\*4030 gctcccactccatgaggtatttccacaccgcatgtcccggcccggcgcggggagccccgcttc  
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【0325】

B\*4031 gctcccactccatgaggtatttccacaccgcatgtcccggcccggcgcggggagccccgcttc  
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【0326】

B\*4032 gctcccactccatgaggtatttccacaccgcatgtcccggcccggcgcggggagccccgcttc

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【0327】

B\*4033 gctcccactccatgaggtatttcCacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0328】

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【0329】

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【0330】

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【0331】

B\*4037 gctcccactccatgaggtatttcCacacctccgtgtcccggcccggccgcggggagccccgcttc  
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【0332】

B\*4038 gctccactccatgaggtatttccacaccgcatgtcccggcccggccgsgggagccccgcttc  
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【0333】

B\*4039 gggggcagtgggcctgaccgagacctgggcTggctccactccatgaggtatttccacacctccg  
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【0334】

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【0335】

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【0336】

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【0337】

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【0338】

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【0339】

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【0340】

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【0341】

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【0342】

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【0343】

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【0344】

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【0345】

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【0346】

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【0347】

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【0348】

B\*440202 gctcccactccatgaggtatttctacaccgccatgtcccggcccggcgggggagccccgcttc  
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【0349】

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【0350】

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【0351】

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【0352】

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【0353】

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【0354】

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【0355】

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【0356】

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【0357】

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【0358】

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【0359】

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【0360】

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【0361】

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【0362】

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【0363】

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【 0 3 6 7 】

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【0370】

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【0371】

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【0372】

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【0373】

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【0374】

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【0375】

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【0376】

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【0377】

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【0378】

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【0379】

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【0380】

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【0381】

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【0382】

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【0383】

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【0384】

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【0385】

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【0386】

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【0387】

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【0388】

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【0389】

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【0390】

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【0391】

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【0392】

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【0393】

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【0394】

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【0395】

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【0396】

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【0397】

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## 【0398】

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## 【0399】

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## 【0400】

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## 【0401】

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## 【0402】

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【0403】

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【0404】

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【0405】

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【0406】

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【0407】

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【0408】

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【0409】

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【0410】

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【0411】

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【0412】

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【0413】

B\*5104 atgcgggtcacggcgccccgaaccgtcctcctgctgctctggggggcagtgccctgaccgagac  
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【0414】

B\*5105 gctcccactccatgaggtatttctacaccgccatgtcccggcccggccgaggagccccgcttcc  
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【0415】

B\*5106 gctccactccatgaggtatttctacaccgccatgtcccggcccggccgsggggagccccgcttc  
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【0416】

B\*5107 gctccactccatgaggtatttctacaccgccatgtcccggcccggccgsggggagccccgcttc  
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【0417】

B\*5108 atgcggtcacggcggcccggaaccgtcctcctgctgcttggggggcagtggccctgaccgagac  
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【0418】

B\*5109 gctccactccatgaggtatttctacaccgccatgtcccggcccggccgsggggagccccgcttc  
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## 【0419】

B\*5110      tacaccgccaatgtcccggcccggccgcggggagccccgcttcattgcagtgggctacgtggacga  
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## 【0420】

B\*5112      gctcccactccatgaggtatttctacaccgccaatgtcccggcccggccgcggggagccccgcttc  
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## 【0421】

B\*511301      gctcccactccatgaggtatttctacaccgccaatgtcccggcccggccgcggggagccccgcttc  
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## 【0422】

B\*511302      gctcccactccatgaggtatttctacaccgccaatgtcccggcccggccgcggggagccccgcttc  
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## 【0423】

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## 【0424】

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【0425】

B\*5116 gctccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0426】

B\*5117 gctccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0427】

B\*5118 gctccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0428】

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【0429】

B\*5120 gctccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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## 【0430】

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## 【0431】

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## 【0432】

B\*5123 gctccactccatgaggtattttctacaccgccaatgtcccggcccggccgcggggagccccgcttc  
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## 【0433】

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## 【0434】

B\*5126 gctccactccatgaggtattttctacaccgccaatgtcccggcccggccgcggggagccccgcttc  
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## 【0435】

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【0436】

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【0437】

B\*5130 gctcccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0438】

B\*5131 gctcccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0439】

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【0440】

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【0441】

B\*5134 gctccactccatgaggtatttctacaccgcatgtcccggcccgccgcggggagccccgcttc  
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【0442】

B\*520101 atgcggtcacggcgccccgaaccgtcctcctgtgctctggggggcagtgccctgaccgagac  
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【0443】

B\*520102 gtcctcctgtgctctggggggcagtgccctgaccgagacctgggcccgtcccactccatgag  
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【0444】

B\*520103 gctccactccatgaggtatttctacaccgcatgtcccggcccgccgcggggagccccgcttc  
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【0445】

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【0446】

B\*5202 gctcccactccatgaggtatttctacaccgcatgtcccggcccggcgcggggagccccgcttc  
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【0447】

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【0448】

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【0449】

B\*5205 gctcccactccatgaggtatttctacaccgcatgtcccggcccggcgcggggagccccCcttc  
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【0450】

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【0451】

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【0452】

B\*5303 gctcccactccatgaggtattttacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0453】

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【0454】

B\*5305 gctcccactccatgaggtattttacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【0455】

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【0456】

B\*5307 gctccactccatgaggtattttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0457】

B\*5308 gctccactccatgaggtattttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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【0458】

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【0459】

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【 0 4 6 0 】

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【 0 4 6 1 】

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【 0 4 6 2 】

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【 0 4 6 3 】

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【0464】

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【0465】

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【0466】

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【0467】

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【0468】

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【0474】

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【0475】

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【0476】

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【0477】

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【 0 4 7 8 】

B\*5607 gctcccactccatgaggtattttctacaccgccatgtcccggcccggccgcggggagccccgcttc  
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【 0 4 7 9 】

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【 0 4 8 0 】

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【 0 4 8 1 】

B\*5610 gctcccactccatgaggtattttctacaccgccAtgtcccggcccggccgcggggagccccgcttc  
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【 0 4 8 2 】

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【0483】

B\*570101 atgcgggtcacggcaccgccgaaccgtcctcctgctgctctggtggggcagtgccctgaccgagac  
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【0484】

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【0485】

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【0486】

B\*570301 atgcgggtcacggcaccgccgaaccgtcctcctgctgctctggtggggcagtgccctgaccgagac  
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【 0 4 8 7 】

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【 0 4 8 8 】

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【 0 4 8 9 】

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【 0 4 9 0 】

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【 0 4 9 1 】

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【0492】

B\*5708 gctcccactccatgaggtatttctacaccgcatgtcccggcccggcgcggggagccccgcttc  
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【0493】

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【0494】

B\*5801 atgcgggtcacggcgccccgaaccgtcctcctgctgctctggggggcagtgccctgaccgagac  
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【0495】

B\*5802 atgcgggtcacggcgccccgaaccgtcctcctgctgctctggggggcagtgccctgaccgagac  
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## 【0496】

B\*5804 atgcgggtcacggcgccccgaaccgtcctcctgctgctctggggggcagtgccctgaccgagac  
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## 【0497】

B\*5805 gctcccactccatgaggtatttctacaccgccatgtcccggcccggccgccccgagccccgcttc  
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gccatggatagagcaggaggggcccggagtattgggacggggagacacggaacatgaaggcctccgcgcagacttaccgag  
agaacctgcggtatcgcgctccgctactacaaccagagcgaggccgggtctcacatcatccagaggatgtatggctgcgac  
ctggggcccaggggcgcctcctccgcgggcatgaccagtcgcctacgacggcaaggattacatcgccctgaacgagga  
cctgagctcctggaccgcccggacaccgcggtcagatcacccagcgcaagtgggaggcgccccgtgCggcgagcagc  
tgagagcctacctggagggcacgtgctggagtggctccgcagatacctggagaacgggaaggagacgctgcagcgcgcg  
g

## 【0498】

B\*5806 gctcccactccatgaggtatttctacaccgccatgtcccggcccggccgccccgagccccgcttc  
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gccatggatagagcaggaggggcccggagtattgggacggggagacacggaacatgaaggcctccgcgcagacttaccgag  
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g

## 【0499】

B\*5807 gctcccactccatgaggtatttctacaccgccatgtcccggcccggccgccccgagccccgcttc  
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g

## 【0500】

B\*5901 atgcgggtcacggcacccccgaaccctcctcctgctgctctggggggccctggccctgaccgagac  
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## 【0501】

B\*670101 atgctggtcatggcgccccgaaccgtcctcctgctgctctcggcggccctggccctgaccgagac  
ctgggcccggctcccactccatgaggtatttctacacctccgtgtcccggcccggccgccccgagccccgcttcatctcag  
tgggctacgtggacgacacgcagttcgtgaggttcgacagcgacgccgcgagtcagagagaggagccgccccgcccgtgg  
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## 【0502】

B\*670102 gctcccactccatgaggtatttctacacctccgtgtcccggcccggccgccccgagccccgcttcc  
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## 【0503】

B\*6702 atgctggtcatggcgccccgaaccgtcctcctgctgctctcggcggccctggccctgaccgagac  
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## 【0504】

B\*7301 atgctggtcatggcgccccgaaccgtcctcctgctgctctcggcggccctggccctgaccgagac  
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## 【0505】

B\*7801 atgcgggtcacggcgccccgaaccgtcctcctgctgctctggggggcagtgggcctgaccgagac  
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## 【0506】

B\*780201 atgcgggtcacggcgccccgaaccgtcctcctgctgctctggggggcagtgggcctgaccgagac  
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## 【0507】

B\*780202 gctcccactccatgaggtatttctacaccgccatgtcccggcccgccgaggagccccgctt  
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## 【0508】

B\*7803 gctcccactccatgaggtatttctacaccgccatgtcccggcccgccgaggagccccgctt  
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g

## 【0509】

B\*7804 gctcccactccatgaggtatttctacaccgccatgtcccggcccgccgaggagccccgctt  
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【0510】

B\*7805 gctcccactccatgaggtatttctacaccgcatgtcccggcccggccgcggggagccccgcttc  
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g

【0511】

B\*8101 atgctggatcatggcgccccgaaccgtcctcctgctgctctggggggcagtgccctgaccgagac  
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【0512】

B\*8201 gctcccactccatgaggtatttctacaccgctatgtcccggcccggccgcggggagccccgcttc  
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【0513】

B\*8202 atcggggtcacggcacccccgaacctcctcctgctgctctggggggccctggccctgaccgagac  
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【0 5 1 4】

B\*8301 atgcgggtcacggcgccccgaaccctcctcctgctgctctggggggcaGtggccctgaccgagac  
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ctacctggagggccTgtgctgaggatGctccgcagatacctggagaacgggaaggagacgctgcagcgcgGg。

以下、表 1-1 ~ 1-9 にプローブリスト 1 を、表 2-1 ~ 2-8 にプローブリスト 2  
を示す。

【0 5 1 5】

【表 1】

表 1-1

プローブ番号

塩基配列

0	agg tat ttc tac acc tcc G	(配列番号:1)
1	ct cac acc ctc cag agC	(配列番号:2)
2	gc ctc ctc cgc ggg C	(配列番号:3)
3	c cgc ggg cat gac cag T	(配列番号:4)
4	gt gag gcg gag cag cG	(配列番号:5)
5	t gag gcg gag cag cgG	(配列番号:6)
6	gcc tac ctg gag ggc gA	(配列番号:7)
7	ggc gag tgc gtg gag tG	(配列番号:8)
8	c ggg aag gac aag ctg G	(配列番号:9)
9	g gag tgg ctc cgc agG	(配列番号:10)
10	gc tac gtg gac gac acG	(配列番号:11)
11	a cag atc tac aag acc aac A	(配列番号:12)
12	gt gag gcg gag cag gaC	(配列番号:13)
13	c ctc ctc cgc ggg cat A	(配列番号:14)
14	cg tct tcc cag tcc acc A	(配列番号:15)
15	ct cac acc ctc cag agG	(配列番号:16)
16	ac cgg aac aca cag atc tT	(配列番号:17)
17	a cag atc ttc aag acc aac A	(配列番号:18)
18	cgc ggg cat gac cag tC	(配列番号:19)
19	c cgg aac aca cag atc tG	(配列番号:20)
20	ca cag act gac cga gag aA	(配列番号:21)
21	g gcc ggg tct cac atc A	(配列番号:22)
22	ac atc atc cag agg atg taT	(配列番号:23)
23	gg atg tat ggc tgc gac C	(配列番号:24)
24	c tgc gac ctg ggg ccC	(配列番号:25)
25	ag aca cag aag tac aag cG	(配列番号:26)
26	c aag cgc cag gca cag G	(配列番号:27)
27	gca cag gct gac cga gT	(配列番号:28)
28	gag gcc ggg tct cac aT	(配列番号:29)
29	g tct cac atc atc cag agG	(配列番号:30)
30	cgc ctc ctc cgc ggg T	(配列番号:31)

【0516】

【表2】

表1-2

プローブ番号

塩基配列

31	c aag gcc cag gca cag G	(配列番号:32)
32	c aag acc aac aca cag act T	(配列番号:33)
33	cgc ggg tat gac cag tC	(配列番号:34)
34	gcc tac ctg gag ggc aC	(配列番号:35)
35	ctg gag aac ggg aag gaG	(配列番号:36)
36	g acg ctg gag cgc gcG	(配列番号:37)
37	gcc tac ctg gag ggc cT	(配列番号:38)
38	ggc ctg tgc gtg gag tC	(配列番号:39)
39	c ggc cgc ggg gag cT	(配列番号:40)
40	tcc tgg acc gcc gcg A	(配列番号:41)
41	cgg aac ctg cgc ggc C	(配列番号:42)
42	gcc tac ctg gag ggc C	(配列番号:43)
43	gg gag gcg gcc cgt gT	(配列番号:44)
44	gt gtg gcg gag cag gaC	(配列番号:45)
45	cgt gag gcg gag cag cT	(配列番号:46)
46	c cgg aac aca cag atc tC	(配列番号:47)
47	ca cag act tac cga gag G	(配列番号:48)
48	ctg cgg acc ctg ctc C	(配列番号:49)
49	c cgc ggg tat gac cag G	(配列番号:50)
50	cac tcc atg agg tat ttc G	(配列番号:51)
51	gg tat ttc gac acc gcc A	(配列番号:52)
52	cg aga gag gag ccg cC	(配列番号:53)
53	a gcc tac ctg gag ggc A	(配列番号:54)
54	g atg tgt agg agg aag agC	(配列番号:55)
55	ctg cgc acc gcg ctc C	(配列番号:56)
56	c cga gag aac ctg cgg aT	(配列番号:57)
57	gag aac ctg cgg atc gC	(配列番号:58)
58	ctg cgg atc gcg ctc C	(配列番号:59)
59	c acg ctg gag cgc gcG	(配列番号:60)
60	g gac cgg aac aca cag aC	(配列番号:61)

【0517】

## 【表 3】

表 1-3

プローブ番号	塩基配列	
61	c act tgg cag acg atg taT	(配列番号:62)
62	g gag tat tgg gac cgg G	(配列番号:63)
63	c cgg gac aca cag atc tT	(配列番号:64)
64	cgt gtg gcg gag cag cT	(配列番号:65)
65	cgc ggg tac cac cag G	(配列番号:66)
66	c aca cag act gac cga gT	(配列番号:67)
67	ttc aag acc aac aca cag G	(配列番号:68)
68	c cgg gag aca cag atc tC	(配列番号:69)
69	g tgc tgg gcc ctg ggC	(配列番号:70)
70	g gct cag atc acc cag cT	(配列番号:71)
71	g tct cac act tgg cag aC	(配列番号:72)
72	cgc ggg cat aac cag ttA	(配列番号:73)
73	cg atg tat ggc tgc gac C	(配列番号:74)
74	tgg gag cca tct tcc caA	(配列番号:75)
75	gag cag ctg aga gcc tG	(配列番号:76)
76	gg tct cac acc ctc cag T	(配列番号:77)
77	cc aga cca gca gga gaC	(配列番号:78)
78	cc ctg aga tgg gag ccA	(配列番号:79)
79	c atg agg tat ttc tac acc G	(配列番号:80)
80	c tcc cac tcc atg agg C	(配列番号:81)
81	g cag gag ggg ccg gaA	(配列番号:82)
82	g gag tgg ctc cgc aga C	(配列番号:83)
83	g acg ctg cag cgc gcG	(配列番号:84)
84	c acc ctc cag agg atg taT	(配列番号:85)
85	tc ctg ctg ctc tcg ggA	(配列番号:86)
86	gcg ccc cgg gcg ccA	(配列番号:87)
87	gag tat tgg gac cgg gaG	(配列番号:88)
88	c cgt gag gcg gag cag T	(配列番号:89)
89	gac caa act cag gac acC	(配列番号:90)
90	cc gcc tac gac ggc aaA	(配列番号:91)

【0518】

【表 4】

表 1-4

プローブ番号	塩基配列	
91	g agc tcc tgg acc gcG	(配列番号:92)
92	g gat tac atc gcc ctg aaT	(配列番号:93)
93	c gac acg cag ttc gtg C	(配列番号:94)
94	cag atc tcc aag acc aac A	(配列番号:95)
95	c gga gct gtg gtc gct A	(配列番号:96)
96	c acc ctc cag agg atg tT	(配列番号:97)
97	tac gcc tac gac ggc aaA	(配列番号:98)
98	cag atc tgc aag acc aac A	(配列番号:99)
99	cg agt ccg agg atg gcT	(配列番号:100)
100	g ggc ctg tgc gtg gaC	(配列番号:101)
101	gg gcc ggc tcc cac tT	(配列番号:102)
102	ac atg aag gcc tcc gcG	(配列番号:103)
103	gca gct gtg gtg gtg cT	(配列番号:104)
104	gtg acc cac cac ccc G	(配列番号:105)
105	g tat tgg gac cgg gag aT	(配列番号:106)
106	gcg agt ccg agg atg gC	(配列番号:107)
107	c acc ctc cag agg atg tC	(配列番号:108)
108	gg acc gcc gcg gac aA	(配列番号:109)
109	g atg tac ggc tgc gac C	(配列番号:110)
110	g tct cac acc ctc cag aC	(配列番号:111)
111	ct cac acc ctc cag acG	(配列番号:112)
112	ac cga gag aac ctg cgC	(配列番号:113)
113	c ggg aag gag acg ctg C	(配列番号:114)
114	cc ctg aac gag gac ctg A	(配列番号:115)
115	g gag ccc cgc ttc atc G	(配列番号:116)
116	agg tat ttc tac acc gcc A	(配列番号:117)
117	t ccg agg atg gcg ccC	(配列番号:118)
118	g ttc gac agc gac gcc A	(配列番号:119)
119	gag ccg cgg gcg ccA	(配列番号:120)
120	g gcg gag cag ctg aga A	(配列番号:121)

【0519】

## 【表 5】

表 1-5

プローブ番号

塩基配列

121	a acc tac ctg gag ggc C	(配列番号:122)
122	acc tac ctg gag ggc cT	(配列番号:123)
123	c tcc aag acc aac aca cG	(配列番号:124)
124	c tac gtg gac gac acg cT	(配列番号:125)
125	c cgg gag aca cag atc tT	(配列番号:126)
126	ac aca cag act tac cga gT	(配列番号:127)
127	ca cag act tac cga gtg aA	(配列番号:128)
128	c cgc ggg cat aac cag tT	(配列番号:129)
129	cc cag ttc gtg agg ttc A	(配列番号:130)
130	c cgg gag aca cag atc tG	(配列番号:131)
131	g gct cag atc acc cag cA	(配列番号:132)
132	acc tac ctg gag ggc aC	(配列番号:133)
133	cac tcc atg agg tat ttc C	(配列番号:134)
134	gac ccc cca aag aca caT	(配列番号:135)
135	gag aca cag atc tcc aag aT	(配列番号:136)
136	gg gag gcg gcc cgt C	(配列番号:137)
137	gcg ccg tgg ata gag caA	(配列番号:138)
138	g acc aac aca cag act tac A	(配列番号:139)
139	ac acc ctc cag aat atg taT	(配列番号:140)
140	g gag ccc cgc ttc att G	(配列番号:141)
141	g gat tac atc gcc ctg aaG	(配列番号:142)
142	c acc ctc cag agg atg tG	(配列番号:143)
143	gcg ccg tgg ata gag caA	(配列番号:144)
144	cga gag aac ctg cgc aC	(配列番号:145)
145	gag aac ctg cgc acc gC	(配列番号:146)
146	g tct cac acc ctc cag aaT	(配列番号:147)
147	cag gag ggg ccg gag C	(配列番号:148)
148	ctg ggc ttc tac cct gG	(配列番号:149)
149	ca cag act gac cga gag G	(配列番号:150)
150	c gcc gcg gac acg gcA	(配列番号:151)

【0520】

## 【表 6】

表 1-6

プローブ番号	塩基配列
151	ctg ctc tgg ggg gca G (配列番号:152)
152	c cag agc gag gcc ggT (配列番号:153)
153	c tcc gtg tcc cgg ccT (配列番号:154)
154	cgc ggg tac cac cag C (配列番号:155)
155	tg acc gag acc tgg gcT (配列番号:156)
156	cag gag ggg ccg gag tT (配列番号:157)
157	cga gag agc ctg cgg aC (配列番号:158)
158	c acg gcg gct cag atc T (配列番号:159)
159	cg gag cag ctg aga gcT (配列番号:160)
160	gg ccc gac ggg cgc T (配列番号:161)
161	cgc ggg cat gac cag tT (配列番号:162)
162	cc atg tcc cgg ccc gT (配列番号:163)
163	g acc gcg gcg gac acC (配列番号:164)
164	c tgc gac gtg ggg ccC (配列番号:165)
165	t ccg agg acg gag ccC (配列番号:166)
166	gag ccc cgg gcg ccA (配列番号:167)
167	cc gcg agt ccg agg aC (配列番号:168)
168	cac atc atc cag agg atg tT (配列番号:169)
169	ca cag act tac cga gag aA (配列番号:170)
170	c atg tac ggc tgc gac C (配列番号:171)
171	ctg cgg aac ctg cgc gA (配列番号:172)
172	cat gac cag tcc gcc tG (配列番号:173)
173	c acc atc cag agg atg tC (配列番号:174)
174	gac ctg agc tcc tgg acA (配列番号:175)
175	cga gag agc ctg cgc aC (配列番号:176)
176	g cag gag ggg ccg gG (配列番号:177)
177	ga acc tac ctg gag ggc A (配列番号:178)
178	a acc tac ctg gag ggc aT (配列番号:179)
179	c tgg acc gcg gcg gaG (配列番号:180)
180	ta gag cag gag ggg ccA (配列番号:181)

【0521】



## 【表 7】

表 1-7

プローブ番号	塩基配列	
181	tct cac act tgg cag acG	(配列番号:182)
182	g gcg gag cag cgg aga A	(配列番号:183)
183	cgg ccc ggc cgc ggA	(配列番号:184)
184	gg tct cac acc ctc caC	(配列番号:185)
185	c cgc ggg tat aac cag ttA	(配列番号:186)
186	g gcg gag cag tgg aga A	(配列番号:187)
187	gaa tat tgg gac cgg gaG	(配列番号:188)
188	gcg gct cag atc acc cG	(配列番号:189)
189	cac acc ctc cag agc aC	(配列番号:190)
190	ag tgg gag gcg gcc cT	(配列番号:191)
191	g acc gag acc tgg gcG	(配列番号:192)
192	c gcc acg agt ccg agg A	(配列番号:193)
193	g atc tcc cag cgc aag tT	(配列番号:194)
194	tg gag gcg gcc cgt gT	(配列番号:195)
195	tg acc gag acc tgg gcT	(配列番号:196)
196	g cgc tcc tgg acc gcG	(配列番号:197)
197	ag ggc gag tgc gtg gaT	(配列番号:198)
198	gg tat ttc cac acc gcc A	(配列番号:199)
199	c cgc ggg cat aac cag A	(配列番号:200)
200	ccg gag tat tgg gac cC	(配列番号:201)
201	gg tct cac atc atc cag G	(配列番号:202)
202	c gcc tac gac ggc aag A	(配列番号:203)
203	cgc ggg cat aac cag tC	(配列番号:204)
204	cc ggg tct cac act tgG	(配列番号:205)
205	c act tgg cag agg atg taT	(配列番号:206)
206	ga gag agc ctg cgg aaG	(配列番号:207)
207	c ggg aag gac acg ctg C	(配列番号:208)
208	c acg ctg cag cgc gcG	(配列番号:209)
209	cc atc tct gac cat gag gT	(配列番号:210)
210	cgg gag aca cag atc tcG	(配列番号:211)

【0522】

## 【表 8】

表 1-8

プローブ番号	塩基配列	
211	g gag gcg gcc cgt gtC	(配列番号:212)
212	a gag aac ctg cgc acc G	(配列番号:213)
213	gg gag ccc cgc ttc atT	(配列番号:214)
214	ctg cgc acc ccg ctc C	(配列番号:215)
215	gg ccg gag tat tgg gaG	(配列番号:216)
216	c cgc ggg cat aac cag G	(配列番号:217)
217	ggc gag tgc gtg gag tC	(配列番号:218)
218	cgg gcg ccg tgg gtG	(配列番号:219)
219	ga gag aac ctg cgg atc G	(配列番号:220)
220	gtg gac gac acg ctg ttG	(配列番号:221)
221	tg gag ggc ctg tgc gC	(配列番号:222)
222	gac ggc aag gat tac atc A	(配列番号:223)
223	c cgc ggg tat aac cag tT	(配列番号:224)
224	ctc cgc ggg tat aac cG	(配列番号:225)
225	gcg gag cag gac aga gT	(配列番号:226)
226	gag aca cag aag tac aag C	(配列番号:227)
227	cgc cag gca cag act gG	(配列番号:228)
228	t gtg gtc gct gct gtg G	(配列番号:229)
229	c ctg cgg aac ctg ctc C	(配列番号:230)
230	aga acc ttc cag aag tgg A	(配列番号:231)
231	ag ccc cgc ttc atc tcC	(配列番号:232)
232	c cgc ggg tat aac cag ttA	(配列番号:233)
233	ggc ctg tgc gtg gag G	(配列番号:234)
234	cgg atc gcg ctc cgc G	(配列番号:235)
235	ttc gcc tac gac ggc aaA	(配列番号:236)
236	ctc ctc cgc ggg cat aaA	(配列番号:237)
237	g cgt ctc ctc cgc ggT	(配列番号:238)
238	c ggg cgc ctc ctc cC	(配列番号:239)
239	g agt ccg agg acg gag A	(配列番号:240)
240	ata gag cag gag ggg cG	(配列番号:241)

【0523】

## 【表 9】

表 1-9

プローブ番号	塩基配列
241	cc aga cca gca gga gat G (配列番号:242)
242	cag cat gag ggg ctg cT (配列番号:243)
243	cag act tac cga gag aac T (配列番号:244)
244	gc gac gcc gcg agt cA (配列番号:245)
245	c cgc ggg gag ccc cC (配列番号:246)
246	cga gag agc ctg cgg aT (配列番号:247)
247	gag agc ctg cgg atc gC (配列番号:248)
248	g gca cag act gac cga gT (配列番号:249)
249	g acc gcc gcg gac acC (配列番号:250)
250	g cag gag ggg ccg gC (配列番号:251)
251	cc gcg agt ccg aga gG (配列番号:252)
252	gg tct cac act tgg cag aT (配列番号:253)
253	acg gca ccc cga acc C (配列番号:254)
254	ctc ctc ctg ctg ctc tG (配列番号:255)
255	ag aca cag aag tac aag gG (配列番号:256)
256	gg tct cac atc atc cag gT (配列番号:257)
257	gc ggg cat gac cag tcT (配列番号:258)
258	g acc gcg gcg gac acA (配列番号:259)
259	g ccg gag tat tgg gac G (配列番号:260)
260	c ctc ctc cgc ggg tat A (配列番号:261)
261	c acg gcg gct cag atc aT (配列番号:262)
262	tg cgg atc gcg ctc cC (配列番号:263)
263	g ccg gag tat tgg gac gA (配列番号:264)
264	g gag gcg gcc cgt gC (配列番号:265)
265	c gac gcc gcg agt ccA (配列番号:266)
266	gtc acc gta gct gtg gtC (配列番号:267)
267	g tgt agg agg aag agt tcT (配列番号:268)
268	c aga gcc tac ctg gag gA (配列番号:269)
269	gtc atc gga gct gtg gtT (配列番号:270)

【0524】

## 【表 10】

## 表 2-1

プローブ番号	塩基配列	
0	c acc tcc Gtg tcc cgg	(配列番号:271)
1	c ctc cag agC atg tac gg	(配列番号:272)
2	c cgc ggg Cat gac cag	(配列番号:273)
3	cat gac cag Tac gcc tac	(配列番号:274)
4	g gag cag cGg aga gcc	(配列番号:275)
5	gag cag cgG aga gcc ta	(配列番号:276)
6	g gag ggc gAg tgc gtg	(配列番号:277)
7	c gtg gag tGg ctc cgc	(配列番号:278)
8	ac aag ctg Gag cgc gct	(配列番号:279)
9	ctc cgc agG tac ctg ga	(配列番号:280)
10	g gac gac acG cag ttc gt	(配列番号:281)
11	aag acc aac Aca cag act g	(配列番号:282)
12	g gag cag gaC aga gcc ta	(配列番号:283)
13	cgc ggg cat Aac cag tac	(配列番号:284)
14	cag tcc acc Atc ccc atc	(配列番号:285)
15	c ctc cag agG atg tac gg	(配列番号:286)
16	aca cag atc tTc aag acc aa	(配列番号:287)
17	t gac cag tCc gcc tac g	(配列番号:288)
18	ca cag atc tGc aag gcc c	(配列番号:289)
19	c cga gag aAc ctg cgg a	(配列番号:290)
20	tct cac atc Atc cag agg a	(配列番号:291)
21	g agg atg taT ggc tgc ga	(配列番号:292)
22	c tgc gac Ctg ggg ccc	(配列番号:293)
23	ctg ggg ccC gac ggg	(配列番号:294)
24	g tac aag cGc cag gca c	(配列番号:295)
25	ag gca cag Gct gac cga	(配列番号:296)
26	t gac cga gTg agc ctg c	(配列番号:297)
27	gg tct cac aTc atc cag ag	(配列番号:298)
28	c atc cag agG atg tac gg	(配列番号:299)
29	tc cgc ggg Tat gac cag	(配列番号:300)
30	aag acc aac Aca cag act ta	(配列番号:301)

【0525】

## 【表 11】

表 2-2

プローブ番号

塩基配列

31	aca cag act Tac cga gag a	(配列番号:302)
32	g gag ggc aCg tgc gtg	(配列番号:303)
33	ggg aag gaG acg ctg ga	(配列番号:304)
34	g aag gag aCg ctg gag c	(配列番号:305)
35	g gag ggc cTg tgc gtg	(配列番号:306)
36	c gtg gag tCg ctc cgc	(配列番号:307)
37	c ggg gag cTc cgc ttc	(配列番号:308)
38	c gcc gcg Aac acg gcg	(配列番号:309)
39	tg cgc ggc C ac tac aac	(配列番号:310)
40	g gag ggc Ctg tgc gtg	(配列番号:311)
41	g gcc cgt gTg gcg gag	(配列番号:312)
42	g gag cag cTg aga gcc t	(配列番号:313)
43	ca cag atc tCc aag acc aa	(配列番号:314)
44	aca cag act Tac cga gag g	(配列番号:315)
45	c cga gag Gac ctg cgg	(配列番号:316)
46	cc ctg ctc Cgc tac tac	(配列番号:317)
47	tat gac cag Gac gcc tac	(配列番号:318)
48	agg tat ttc Gac acc gcc	(配列番号:319)
49	c acc gcc Atg tcc cgg	(配列番号:320)
50	gag ccg cCg gcg ccg	(配列番号:321)
51	g gag ggc Acg tgc gtg	(配列番号:322)
52	g agg aag agC tca ggt gg	(配列番号:323)
53	cc gcg ctc Cgc tac tac	(配列番号:324)
54	c ctg cgg aTc gcg ctc	(配列番号:325)
55	g cgg atc gCg ctc cgc	(配列番号:326)
56	tc gcg ctc Cgc tac tac	(配列番号:327)
57	g aag gac aCg ctg gag c	(配列番号:328)
58	ac aca cag aCc ttc aag ac	(配列番号:329)
59	g acg atg taT ggc tgc ga	(配列番号:330)
60	gg gac cgg Gac aca cag	(配列番号:331)
61	ac cac cag Gac gcc tac	(配列番号:332)

【0526】

## 【表 12】

表 2-3

プローブ番号	塩基配列	
62	aac aca cag Gct gac cga	(配列番号:333)
63	gcc ctg ggC ttc tac cc	(配列番号:334)
64	c acc cag cTc aag tgg g	(配列番号:335)
65	ct tgg cag aCg atg tat gg	(配列番号:336)
66	t aac cag ttA gcc tac gac	(配列番号:337)
67	c tgc gac Ctg ggg ccg	(配列番号:338)
68	a tct tcc caA tcc acc gtc	(配列番号:339)
69	g aga gcc tGc ctg gag g	(配列番号:340)
70	acc ctc cag Tgg atg tat g	(配列番号:341)
71	a gca gga gaC aga acc ttc	(配列番号:342)
72	a tgg gag ccA tct tcc ca	(配列番号:343)
73	tc tac acc Gcc gtg tcc	(配列番号:344)
74	tcc atg agg Cat ttc tac ac	(配列番号:345)
75	g ggg ccg gaA tat tgg ga	(配列番号:346)
76	tc cgc aga Cac ctg gag	(配列番号:347)
77	g acg ctg Cag cgc gcg	(配列番号:348)
78	ctc tcg ggA gcc ctg g	(配列番号:349)
79	cgg gcg ccA tgg ata ga	(配列番号:350)
80	g gac cgg gaG aca cag at	(配列番号:351)
81	cg gag cag Tgg aga gcc	(配列番号:352)
82	t cag gac acC gag ctt gt	(配列番号:353)
83	c gac ggc aaA gat tac atc	(配列番号:354)
84	tgg acc gcG gcg gac a	(配列番号:355)
85	c gcc ctg aaT gag gac ct	(配列番号:356)
86	cag ttc gtg Cgg ttc gac	(配列番号:357)
87	gtg gtc gct Act gtg atg	(配列番号:358)
88	ag agg atg tTt ggc tgc g	(配列番号:359)
89	ca cag atc tGc aag acc aa	(配列番号:360)
90	agg atg gcT ccc cgg g	(配列番号:361)
91	tgc gtg gaC ggg ctc c	(配列番号:362)
92	gc tcc cac tTc atg agg t	(配列番号:363)

【0527】



## 【表 13】

表 2-4

プローブ番号	塩基配列	
93	gcc tcc gcG cag act ta	(配列番号:364)
94	tg gtg gtg cTt tct gga g	(配列番号:365)
95	ac cac ccc Gtc tct gac	(配列番号:366)
96	ac cgg gag aTt cag atc tc	(配列番号:367)
97	g agg atg gCg ccc cgg	(配列番号:368)
98	g agg atg tCt ggc tgc g	(配列番号:369)
99	c gcg gac aAg gcg gct	(配列番号:370)
100	cc ctc cag aCg atg tac g	(配列番号:371)
101	c ctc cag acG atg tac gg	(配列番号:372)
102	aac ctg cgC acc gcg c	(配列番号:373)
103	ag gac ctg Agc tcc tgg	(配列番号:374)
104	gc ttc atc Gca gtg ggc	(配列番号:375)
105	atg gcg ccC cgg gcg	(配列番号:376)
106	c gac gcc Acg agt ccg	(配列番号:377)
107	cag ctg aga Acc tac ctg	(配列番号:378)
108	cc aac aca cGg act tac c	(配列番号:379)
109	ggg aag gaG acg ctg ca	(配列番号:380)
110	ac gac acg cTg ttc gtg a	(配列番号:381)
111	ct tac cga gTg aac ctg c	(配列番号:382)
112	c cga gtg aAc ctg cgg a	(配列番号:383)
113	at aac cag tTc gcc tac ga	(配列番号:384)
114	gtg agg ttc Aac agc gac	(配列番号:385)
115	c acc cag cAc aag tgg g	(配列番号:386)
116	cg gag cag cTg aga acc t	(配列番号:387)
117	agg tat ttc C ac acc tcc g	(配列番号:388)
118	a aag aca caT gtg acc cac	(配列番号:389)
119	atc tcc aag aTc aac aca ca	(配列番号:390)
120	g gcc cgt Cag gcg gag	(配列番号:391)
121	g ata gag caA gag ggg cc	(配列番号:392)
122	cag act tac Aga gag agc c	(配列番号:393)
123	g aat atg taT ggc tgc gac	(配列番号:394)

【0528】

【表 1 4】

表 2 - 5

プローブ番号

塩基配列

124	cgc ttc att Gca gtg ggc	(配列番号:395)
125	gcc ctg aaG gag gac ct	(配列番号:396)
126	ct tac cga gTg agc ctg c	(配列番号:397)
127	g agg atg tGc ggc tgc g	(配列番号:398)
128	g ata gag caA gag ggg cc	(配列番号:399)
129	ca cag atc tGc aag gcc a	(配列番号:400)
130	c ctg cgc aCc gcg ctc	(配列番号:401)
131	cgc acc gCg ctc cgc	(配列番号:402)
132	c ctc cag aaT atg tat ggc	(配列番号:403)
133	gg ccg gag Cat tgg gac	(配列番号:404)
134	tc tac cct gGg gag atc a	(配列番号:405)
135	g gac acg gcA gct cag at	(配列番号:406)
136	g ggg gca Gtg gcc ctg	(配列番号:407)
137	gag gcc ggT tct cac ac	(配列番号:408)
138	tcc cgg ccT ggc cgc	(配列番号:409)
139	ac cac cag Cac gcc tac	(配列番号:410)
140	acc tgg gcT ggc tcc c	(配列番号:411)
141	g gtc acg gAg ccc cga	(配列番号:412)
142	g ccg gag tTt tgg gac c	(配列番号:413)
143	c ctc cag aaT atg tac ggc	(配列番号:414)
144	c ctg cgg aCc ctg ctc	(配列番号:415)
145	ct cag atc Tcc cag cgc	(配列番号:416)
146	g ctg aga gcT tac ctg ga	(配列番号:417)
147	c ggg cgc Ttc ctc cgc	(配列番号:418)
148	at gac cag tTc gcc tac g	(配列番号:419)
149	cgc ggg cat Aac cag ttc	(配列番号:420)
150	cgg ccc gTc cgc ggg	(配列番号:421)
151	gcg gac acC gcg gct c	(配列番号:422)
152	tct cac atc Atc cag agc a	(配列番号:423)
153	gtg ggg ccC gac ggg	(配列番号:424)
154	acg gag ccC cgg gcg	(配列番号:425)

【0 5 2 9】

## 【表15】

表2-6

## プローブ番号

## 塩基配列

155	t ccg agg aCg gag ccc	(配列番号:426)
156	ac ctg cgc gAc tac tac a	(配列番号:427)
157	g tcc gcc tGc gac ggc	(配列番号:428)
158	tcc tgg acA gcg gcg g	(配列番号:429)
159	c cga gag aAc ctg cgc a	(配列番号:430)
160	g ggg ccg gGa tat tgg g	(配列番号:431)
161	tg gag ggc Atg tgc gtg	(配列番号:432)
162	g gag ggc aTg tgc gtg g	(配列番号:433)
163	gcg gcg gaG acc gcg	(配列番号:434)
164	g gag ggg ccA gaa tat tg	(配列番号:435)
165	ct tgg cag aCg atg tac g	(配列番号:436)
166	t tgg cag acG atg tac gg	(配列番号:437)
167	cag cgg aga Acc tac ctg	(配列番号:438)
168	ggc cgc ggA gag ccc	(配列番号:439)
169	c acc ctc caC agg atg ta	(配列番号:440)
170	cg gag cag Tgg aga acc	(配列番号:441)
171	cag tgg aga Acc tac ctg	(配列番号:442)
172	g atc acc cGg cgc aag t	(配列番号:443)
173	c cag agc aCg tac ggc t	(配列番号:444)
174	g gcg gcc cTt gtg gcg	(配列番号:445)
175	acc tgg gcG ggc tcc c	(配列番号:446)
176	gtc acg gcA ccc cga ac	(配列番号:447)
177	agg tat ttc Cac acc gcc	(配列番号:448)
178	gt ccg agg Aag gag ccg	(配列番号:449)
179	g cgc aag tTg gag gcg g	(配列番号:450)
180	acc tgg gcT ggc tcc c	(配列番号:451)
181	tgc gtg gaT tgg ctc cg	(配列番号:452)
182	cat aac cag Aac gcc tac g	(配列番号:453)
183	t tgg gac cCg gag aca c	(配列番号:454)
184	atc atc cag Gtg atg tat gg	(配列番号:455)
185	gac ggc aag Aat tac atc g	(配列番号:456)

【0530】

【表 16】

表 2-7

## プローブ番号

## 塩基配列

186	at aac cag tCc gcc tac g	(配列番号:457)
187	ctg cgg aaG ctg cgc g	(配列番号:458)
188	t cac act tgG cag agg atg	(配列番号:459)
189	c acg ctg Cag cgc gcg	(配列番号:460)
190	ac cat gag gTc acc ctg a	(配列番号:461)
191	a cag atc tcG aag acc aac	(配列番号:462)
192	gcc cgt gtC gcg gag c	(配列番号:463)
193	g cgc acc Gcg ctc cg	(配列番号:464)
194	c cgc ttc atT gca gtg gg	(配列番号:465)
195	c ctg cgc aCc ccg ctc	(配列番号:466)
196	cc ccg ctc Cgc tac tac	(配列番号:467)
197	g tat tgg gaG cgg gag ac	(配列番号:468)
198	gc ggg cat Aac cag gac	(配列番号:469)
199	cat aac cag Gac gcc tac	(配列番号:470)
200	ctc cgc ggg Tat aac cag	(配列番号:471)
201	ccg tgg gtG gag cag g	(配列番号:472)
202	g cgg atc Gcg ctc cgc	(配列番号:473)
203	c acg ctg ttG gtg agg tt	(配列番号:474)
204	c ctg tgc gCg gag tcg	(配列番号:475)
205	gat tac atc Acc ctg aac g	(配列番号:476)
206	gg tat aac cGg tta gcc ta	(配列番号:477)
207	ag gac aga gTc tac ctg g	(配列番号:478)
208	aag tac aag Cgc cag gca	(配列番号:479)
209	ca cag act gGc cga gtg a	(配列番号:480)
210	gct gct gtg Gtg tgt agg	(配列番号:481)
211	aac ctg ctc Cgc tac tac	(配列番号:482)
212	cag aag tgg Aca gct gtg	(配列番号:483)
213	cag cgc gcG gac ccc	(配列番号:484)
214	c ttc atc tcC gtg ggc ta	(配列番号:485)
215	c gtg gag Ggg ctc cgc	(配列番号:486)
216	cg ctc cgc Gac tac aac	(配列番号:487)

【0531】

【表 17】

表 2-8

プローブ番号

塩基配列

217	c ggg cat aaA cag tac gc	(配列番号:488)
218	c ctc cgc ggT tat aac ca	(配列番号:489)
219	c ctc ctc cCc ggg cat	(配列番号:490)
220	g acg gag Acc cgg gcg	(配列番号:491)
221	g gag ggg cGg gag tat t	(配列番号:492)
222	gca gga gat Gga acc ttc	(配列番号:493)
223	g ggg ctg cTg aag ccc	(配列番号:494)
224	cgg gtc aCg gcg ccc	(配列番号:495)
225	t ccg agg aCg gag ccg	(配列番号:496)
226	cga gag aac Ttg cgg atc	(配列番号:497)
227	c gcg agt cAg agg acg g	(配列番号:498)
228	g gag ccc cCc ttc atc g	(配列番号:499)
229	g ggg ccg gCg tat tgg	(配列番号:500)
230	t ccg aga gGg gag ccg	(配列番号:501)
231	ct tgg cag aTg atg tat gg	(配列番号:502)
232	g tac aag gGc cag gca c	(配列番号:503)
233	tc atc cag gTg atg tat gg	(配列番号:504)
234	t gac cag tcT gcc tac ga	(配列番号:505)
235	gcg gac acA gcg gct c	(配列番号:506)
236	tat tgg gac Ggg gag aca	(配列番号:507)
237	cgc ggg tat Aac cag tac	(配列番号:508)
238	ct cag atc aTc cag cgc a	(配列番号:509)
239	c gcg ctc cCc tac tac a	(配列番号:510)
240	at tgg gac gAg gag aca c	(配列番号:511)
241	gcc cgt gCg gcg gag	(配列番号:512)
242	g aag gag aCg ctg cag c	(配列番号:513)
243	gcg agt ccA aga ggg ga	(配列番号:514)
244	gct gtg gtC gct gtg gt	(配列番号:515)
245	c ctg gag gAc ctg tgc g	(配列番号:516)
246	a gct gtg gtT gct act gtg	(配列番号:517)

【0532】

以下に、アレループローブ対応リストを示す:

【0533】

(アレループローブ対応リスト1)

B*070201	0	1	2	3	4	5	6	7	8
B*070202	9								
B*070203	10								
B*0703	11								
B*0704	12								
B*0705	13	14							
B*0706	13								
B*0707	15								
B*0708	16	17							
B*0709	18								
B*0710	19								
B*0711	20	18							
B*0712	21	22	23	24					
B*0713	25	26	27						

B*0714	28	21	29	30					
B*0715	31	27							
B*0716	11	32							
B*0717	30	33							
B*0718	28	22							
B*0719	12	34	35	36					
B*0720	37	38							
B*0721	39								
B*0722	40								
B*0723	41								
B*0724	42								
B*0725	43	44							
B*0726	45								
B*0727	46	32	47	48					
B*0728	30	49							
B*0729	50	51							
B*0730	52								
B*0731	53	34							
B*0801	50	54							
B*0802	50	55	54						
B*0803	56	57	58	13	43	44	53	34	59
B*0804	50	46	13	44	53	59			
B*0805	60								
B*0806	50	16	20	13	53	59			
B*0807	50	16	44	53	59				
B*0809	50	61	13	44	53	59			
B*0810	50	62	63	13	44	53	59		
B*0811	50	16	13	44	59				
B*0812	50	15	13	44	53	59			
B*0813	50	16	64	53	59				
B*0814	50	65	44	53	59				
B*0815	66	44	34	59					
B*0816	67	44	59						
B*0817	50	68	20	69					
B*1301	21	70	54						
B*1302	71	70	54						
B*1303	55	61	72	43	64	37	54		
B*1304	73	18	64	74					
B*1306	70	34							
B*1308	75								
B*1309	71	61	72	70					
B*1310	33	70							
B*1311	70	69							
B*1401	76	77	78						
B*1402	79	76	77	78					
B*1403	79	76	77						
B*1404	80								
B*1405	79	81	45	82	83				
B*140601	79	81	15	45	82	83			
B*140602	79	81	84	45	82	83			

B*15010101	85	86	87	68	32	88	89	54	
B*150102	90	91	88	37	83				
B*150103	92								
B*150104	93	37							
B*1502	85	46	22	30	33	45	89	54	
B*1503	85	10	87	68	94	15	18	45	89
54									
B*1504	85	61	88	89	54				
B*1505	15	43	64	37	89	95			
B*1506	96	45	95	54					
B*1507	86	87	68	32	88	54			
B*1508	85	16	32	88	89	54			
B*1509	85	97	45	89	54				
B*1510	85	10	19	98	15	45	89	54	
B*151101	85	86	32	88	89	54			
B*151102	99								
B*1512	100								
B*1513	85	58	22	30	33	45	89	54	
B*1514	85	38	89	54					
B*1515	85	86	46	32	88	89	54		
B*1516	101	54							
B*151701	102	65	89	95	54				
B*1518	85	10	19	98	15	18	45	89	54
B*1519	103								
B*1520	85	104	54						
B*1521	85	19	22	30	33	45	89	54	
B*1523	85	19	98	58	15	18	45	89	54
B*1524	57	58	15	18	91	88	37	83	
B*1525	85	87	68	22	30	33	45	89	54
B*1527	96	88	37						
B*1528	105								
B*1529	85	16	17	15	18	45	89		
B*1530	68	13	91	88	37				
B*1531	106	15	30	33	43	64	37	83	
B*1532	107	88	37						
B*1533	108								
B*1534	68	109	18	91	88	37	83		
B*1535	110	111	18	91	88	37	83		
B*1536	112	30	33	45	42	37	113	83	
B*1537	10	19	32	114	45	37	82		
B*1538	88	82	83						
B*1539	115	106	87	68	94	15	18	45	37
83									
B*1540	115	106	87	68	94	15	18	45	83
B*1542	68	32	71	61	73	72	34	83	
B*1543	47	88	37	83					
B*1544	19	33	91	45	34	83			
B*1545	116	117	86	87	68	32	91	88	37
83									
B*1546	85	115	118	119	87	68	32	18	88



37	83								
B*1547		10	87	68	94	32	15	18	114 91
83									
B*1548		68	13	120	121	122	83		
B*1549		123							
B*1550		18	88	34	83				
B*1551		19	18	43	44	37	35	113	83
B*1552		85	19	15	43	64	83		
B*1553		85	124	118	119	87	68	32	18 88
37	83								
B*1554		85	10	87	68	32	88	89	54
B*1555		85	43	64	89	54			
B*1556		87	125	32	15	18	91	88	37 83
B*1557		126	127	37	113	83			
B*1558		85	128	88	37	83			
B*1560		129							
B*1561		10	87	68	94	15	18	114	45 37
83									
B*1562		10	87	68	94	32	21	22	23 24
18	114	91	45	37	113	83			
B*1563		116	117	86	87	68	32	15	91 88
37	83								
B*1564		10	46	94	32	15	18	114	45 37
83									
B*1565		116	115	106	87	68	94	32	15 18
91	37	83							
B*1566		85	130	32	88	89	54		
B*1567		131							
B*1568		87	68	32	88	89			
B*1569		68	18	45	120	132	83		
B*1570		116	117	86	87	68	94	15	18 91
88	37	83							
B*1571		133	86	87	68	32	15	88	89
B*1572		10	19	18	45	37	134	89	
B*1573		72	88	37	83				
B*1574		135							
B*1575		136							
B*180101		137	32	15	54				
B*180102		138							
B*1802		137	139	54					
B*1803		137	15	54					
B*1804		140	137	46	32	15	43	64	82
B*1805		141							
B*1806		126	82	95	54				
B*1807		137	16	32	15	43	64	82	
B*1808		142							
B*1809		137	55	15	43	64	82		
B*1810		133	137	46	32	15	43	64	
B*1811		133	137	46	32	15	43	64	34
B*1812		137	87	68	32	15	43	64	82

B*1813	133	137	46	32	15	43	82			
B*1814	133	137	46	32	43	64	82			
B*1815	133	137	46	32	15	45	82			
B*1818	107	64	82							
B*2701	130	144	145	55	146	65	43	64	83	
B*2702	57	58	146	65	43	54				
B*2703	147									
B*2704	65	148								
B*270502	130	149	146	65	114	64	54			
B*270503	150									
B*270504	151	130	149	146	139	65	114	43	64	
83										
B*270505	152									
B*270506	153	114								
B*2706	148									
B*2707	149	48	13	64	54					
B*2708	130	146	65	43	54					
B*2709	154									
B*2710	130	149	146	139	65	114	45	83		
B*2711	155	48	13	43	64	54				
B*2712	130	98	146	65	43	54				
B*2713	130	149	146	65	114	64	54			
B*2714	149	73	65	114	43	64	83			
B*2715	146	65	34	83						
B*2716	130	98	149	146	139	65	114	43	64	
83										
B*2717	156									
B*2718	133	124	68	94	32	146	65	114	45	
83										
B*2719	149	21	29	65	114	43	64	83		
B*2720	146	13	45	83						
B*2721	130	48	15	30	114	45	83			
B*2723	16	17	32	157	48	146	65	43	64	
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B*2724	48	158	83							
B*2725	146	37	83							
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B*3502	160									
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B*3512		13	114	43	64	37	104	54					
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18	114	163	43	64	37	113	83						
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B*3524		18	43	64	37	82							
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B*380202	174									
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20 132 83										
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B*3913	68	32	15	13	128	43	64	120	132	
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32 83										
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B*400101	191									
B*400102	133	124	118	192	119	87	68	32	15	
13 193	194									
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93 194										
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13 158										
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43 64	113	83								
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93 194										
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B*4030	201	193	64							
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93 194										
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93	194									1
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B*4103		183	44							
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B*4105		206								
B*4106		204	44	34	207	208				
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B*4204		71	61	13	43	44	53	34	59	
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B*440301		118	64	37	209	54				
B*440302		118	22	64	37	209	54			
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44	37	38	83							
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44	37	38	83							
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44	113	83								
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44	37	38	83							
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B*4425		68	56	219	58	21	30	44	37	38
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B*4426		220								

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B*4428	118	21	22	30	49	163	43	37	38
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B*4429	120	38	83						
B*4430	221								
B*4431	193	217							
B*4432	200	38							
B*4433	222								
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B*4502	32	30	223	44	37	38	83		
B*4503	224								
B*4504	30	185	44	89	95	54			
B*4505	225								
B*4506	30	185	44	38	83				
B*4601	226	54							
B*4602	227								
B*470101	228								
B*4702	96	43	64	69					
B*4703	229	96	65	43	64	83			
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B*4801	32	230							
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04	54								1
B*4803	87	68	32	15	13	193	194		
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B*4807	128	193	194						
B*4901	58	185	45	89	95	54			
B*4902	144	55	185	45	89				
B*4903	165	56	58	23	30	185	45	37	83
B*5001	185	45	89	95	54				
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B*5004	118	30	185	45	37	83			
B*510101	213	16	58	71	45	82	104	54	
B*510102	16	58	71	45	82	104	54		
B*510103	213	16	58	71	61	97	114	45	37
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37	82								
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54									
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B*5103	233	104							
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B*5105	58	97	114	43	37	104			
B*5106	213	166	16	58	97	114	45	37	82
B*5107	213	167	46	58	71	61	97	114	45
37	82								



B*5108	44	82	104	54						
B*5109	213	43	64	37	82					
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B*511301	213	128	114	45	37	82				
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B*5114	236									
B*5115	56	58	71	61	73	72	43	64	37	
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B*5117	237									
B*5118	238									
B*5119	213	120	122	82						
B*5120	213	44	37	82						
B*5121	213	97	34	82						
B*5122	213	19	58	71	61	97	114	45	37	
82										
B*5123	213	45	38							
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B*5126	239									
B*5128	240									
B*5129	213	16	58	71	82	104				
B*5130	104	241								
B*5131	213	97	43	64	82					
B*5132	242									
B*5133	213	166	16	58	71	61	97	114	45	
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45										
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B*520102	213	68	58	71	45	82	104	54		
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45 37 82										
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04 54										
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14 163	43	64	37	113	83					
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B*5308	17	169	56	57	58	21	22	23	24
18 114	163	45	37	113	83				
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B*5401	93	54							
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B*5501	72	34	95	54					
B*5502	72	43	34	95	54				
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13 83									
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B*5507	116	251	72	83					
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B*5509	116	115	10	71	61	73	72	163	83
B*5510	71	61	73	72	43	34	83		
B*5511	252	34	83						
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B*5601	61	72	43	64	37	95	54		
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B*5606	213	167	166	71	61	97	114	45	37
82									
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37 83									
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43 64	37	113	83						
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B*5611	253	24	161	163	43	64	37	69	
B*570101	256	18	64	74					
B*570102	257								
B*5702	13	74							
B*570301	13	64	74						
B*570302	258								
B*5704	201	49	43	83					
B*5705	259	30	260	43	37				
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B*5707	201	38	83						
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B*5709	201	12	83						
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B*5802	76	54							
B*5804	263								
B*5805	264								
B*5806	76	37							
B*5807	76	38							
B*5901	58	72	43	34	95	54			

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B*6702	265								
B*7301	266								
B*7801	213	16	71	45	82	104	54		
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37 82									
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82									
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B*7805	167	165	87	68	32	71	61	97	45
37 82									
B*8101	267								
B*8201	268								
B*8202	269								
B*8301	151	116	21	30	49	44	37	38	83。

【 0 5 3 4 】

(アレループローブ対応リスト 2)

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B*070202	9								
B*070203	10								
B*0703	11								
B*0704	12								
B*0705	13	14							
B*0706	13								
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B*0708	16	11							
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B*0710	18								
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B*0719	12	32	33	34					
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B*0721	37								
B*0722	38								
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B*0724	40								
B*0725	41	12							
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B*0727	43	44	45	46					
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B*0804	48	43	13	12	51	57			
B*0805	58								
B*0806	48	16	19	13	51	57			
B*0807	48	16	12	51	57				
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B*1303	53	59	66	41	42	35	52		
B*1304	67	17	42	68					
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B*1309	65	59	66	64					
B*1310	17	64							
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B*1402	73	70	71	72					
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B*1404	74								
B*1405	73	75	42	76	77				
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B*150102	83	84	81	35					
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B*150104	86	35							
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B*1512	91								

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B*1534	43	67	17	84	81	35			
B*1535	100	101	17	84	81	35			
B*1536	102	29	17	42	40	35	77		
B*1537	10	89	31	103	42	35	76		
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【書類名】 要約書

【要約】

【課題】 HLA-B の各アリルを個別に同定するために有用であるプローブセット及びそれを用いた HLA-B のアリルの同定方法を提供すること。

【解決手段】 HLA-B の各アリルに特有の塩基を含む部分配列のすべてを網羅するプローブからプローブセットを構成し、これを用いて検体に含まれる HLA-B を同定する。

【選択図】 なし

特願 2 0 0 3 - 4 3 0 5 5 4

出 願 人 履 歴 情 報

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